

**CLAIMS**

What is claimed is:

- 5 1. A method for managing resources in a multimedia system, the method comprises:

receiving a client request for a multimedia system service from one of a plurality of clients;

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determining whether the client request is valid for the one of the plurality of clients;

when the client request is valid for the one of the

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plurality of clients, determining whether the multimedia system has sufficient resources of a plurality of resources to fulfill the client request; and

when the multimedia system has the sufficient resources to

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fulfill the client request, allocating at least some of the sufficient resources to fulfill the client request based on a multimedia system resource allocation procedure.

2. The method of claim 1, wherein, when the client request is to view a video program, the determining whether the client request is valid further comprises:

5 determining whether access to the video program is restrict for the one of the plurality of clients;

when the video program is not restricted for the one of the plurality of clients, validating the client request; and

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when the video program is restricted for the one of the plurality of clients, denying the client request.

3. The method of claim 2, wherein the determining whether  
15 the access to the video program is restricted further comprises at least one of:

determining whether the video program exceeds a parental control setting for the one of the plurality of clients;

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determining whether the one of the plurality of clients has rental privileges to access the video program; and

determining whether the one of the plurality of clients has exceeded an allotted daily viewing quota.

4. The method of claim 1, wherein the determining whether  
5 the client request is valid further comprises:

determining whether the client request is received during  
an assigned access time period for the one of the plurality  
of clients;

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when the client request is received during the assigned  
access time period, validating the client request; and

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when the client request is not received during the assigned  
access time period, denying the client request.

5. The method of claim 1, wherein the determining whether  
the multimedia system has the sufficient resources further  
comprises at least one of:

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determining whether a tuning module has capacity to  
accommodate the client request;

determining whether a channel mixer has sufficient processing resources to process the client request; and

determining whether a communication path between a  
5 multimedia server and the plurality of clients has sufficient bandwidth to accommodate the client request.

6. The method of claim 1 further comprises:

10 when the multimedia system does not have the sufficient resources to fulfill the client request, determining whether an alternate multimedia service is available by at least one of:

15 for a video program, adjusting resolution to a default resolution for the multimedia system;

for a video program, adjusting video quality to a default video quality for the multimedia system;

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querying the one of the plurality of clients to select the alternative multimedia service; and

automatically selecting the alternate multimedia service based a pre-programmed alternative selection.

7. The method of claim 1 further comprises:

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when the multimedia system does not have the sufficient resources to fulfill the client request, determining whether the client request has priority over a currently serviced client request; and

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when the client request has priority over the currently serviced client request, preempting the currently serviced client request to obtain the sufficient resources.

15 8. The method of claim 1 further comprises:

20 when the multimedia system does not have the sufficient resources to fulfill the client request, determining whether allocation of the plurality of resources can be reallocated to fulfill the client request; and

when the plurality of resources can be reallocated to fulfill the client request, adjusting allocation of the plurality of resources to fulfill the client request.

9. The method of claim 8, wherein the determining whether allocation of the plurality of resources can be reallocated to fulfill the client request further comprises:

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monitoring use of the plurality of resources in comparison to capabilities of the plurality of resources;

when the use of at least some of the plurality of resources  
10 is not optimal, adjusting the allocation of the plurality of resources.

10. The method of claim 1, wherein the allocating the at least some of the sufficient resources to fulfill the  
15 client request further comprises at least one of:

allocating the at least some of the sufficient resources in a first-come-first serve manner;

20 allocating the at least some of the sufficient resources in a trunked manner; and

allocating the at least some of the sufficient resources based on a predetermined assignment to a particular one of the plurality of clients.

5 11. The method of claim 1 further comprises:

determining whether the multimedia system has excess available resources;

10 when the multimedia system has excess available resources, determining whether the one of the plurality of clients has enhanced feature privileges; and

when the one of the plurality of clients has enhanced  
15 feature privileges, allocating further resources of the plurality of resources to support enhanced features for the one of the plurality of clients.

12. A method for managing resources in a multimedia system, the method comprises:

- receiving a client request for a multimedia service from
- 5 one of a plurality of clients;
- determining whether the client request is valid for the one of the plurality of clients;
- 10 when the client request is valid for the one of the plurality of clients, determining whether the multimedia system has sufficient resources of a plurality of resources to fulfill the client request; and
- 15 when the multimedia system has the sufficient resources to fulfill the client request, allocating best match resources of the sufficient resources to fulfill the client request.

13. The method of claim 12, wherein, when the client
- 20 request is to view a video program, the determining whether the client request is valid further comprises:

determining whether access to the video program is restrict for the one of the plurality of clients;



when the video program is not restricted for the one of the plurality of clients, validating the client request; and

- 5 when the video program is restricted for the one of the plurality of clients, denying the client request.

14. The method of claim 12, wherein the determining whether the client request is valid further comprises:

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determining whether the client request is received during an assigned access time period for the one of the plurality of clients;

- 15 when the client request is received during the assigned access time period, validating the client request; and

when the client request is not received during the assigned access time period, denying the client request.

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15. The method of claim 12, wherein the determining whether the multimedia system has the sufficient resources further comprises at least one of:

determining whether a tuning module has capacity to  
accommodate the client request;

determining whether a channel mixer has sufficient  
5 processing resources to process the client request; and

determining whether a communication path between a  
multimedia server and the plurality of clients has  
sufficient bandwidth to accommodate the client request.

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16. The method of claim 12 further comprises:

when the multimedia system does not have the sufficient  
resources to fulfill the client request, determining

15 whether the client request has priority over a currently  
serviced client request; and

when the client request has priority over the currently  
serviced client request, preempting the currently serviced

20 client request to obtain the sufficient resources.

17. The method of claim 12, wherein the allocating the  
best match resources of the sufficient resources to fulfill  
the client request further comprises:

maintaining a listing of resource capabilities for each of the plurality of resources;

- 5 determining type of resource needed to support the client request; and

performing a best match analysis to identify the best match resources based on the resource capabilities of the best

- 10 match resources and the type of resource needed.

18. The method of claim 12 further comprises:

- determining whether the multimedia system has excess  
15 available resources;

when the multimedia system has excess available resources,  
determining whether the one of the plurality of clients has  
enhanced feature privileges; and

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when the one of the plurality of clients has enhanced  
feature privileges, allocating further resources of the  
plurality of resources to support enhanced features for the  
one of the plurality of clients.

19. An apparatus for managing resources in a multimedia system, the apparatus comprises:

processing module; and

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memory operably coupled to the processing module, wherein the memory includes operational instructions that cause the processing module to:

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receive a client request for a multimedia system service from one of a plurality of clients;

determine whether the client request is valid for the one of the plurality of clients;

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when the client request is valid for the one of the plurality of clients, determine whether the multimedia system has sufficient resources of a plurality of resources to fulfill the client request; and

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when the multimedia system has the sufficient resources to fulfill the client request, allocate at least some of the sufficient resources to fulfill the

client request based on a multimedia system resource allocation procedure.

20. The apparatus of claim 19, wherein, when the client  
5 request is to view a video program, the memory further comprises operational instructions that cause the processing module to determine whether the client request is valid by:

10 determining whether access to the video program is restrict for the one of the plurality of clients;

when the video program is not restricted for the one of the plurality of clients, validating the client request; and

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when the video program is restricted for the one of the plurality of clients, denying the client request.

21. The apparatus of claim 20, wherein the memory further  
20 comprises operational instructions that cause the processing module to determine whether the access to the video program is restricted by at least one of:

determining whether the video program exceeds a parental control setting for the one of the plurality of clients;

determining whether the one of the plurality of clients has  
5 rental privileges to access the video program; and

determining whether the one of the plurality of clients has exceeded an allotted daily viewing quota.

10 22. The apparatus of claim 19, wherein the memory further comprises operational instructions that cause the processing module to determine whether the client request is valid by:

15 determining whether the client request is received during an assigned access time period for the one of the plurality of clients;

when the client request is received during the assigned  
20 access time period, validating the client request; and

when the client request is not received during the assigned access time period, denying the client request.

23. The apparatus of claim 19, wherein the memory further comprises operational instructions that cause the processing module to determine whether the multimedia system has the sufficient resources by at least one of:

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determining whether a tuning module has capacity to accommodate the client request;

determining whether a channel mixer has sufficient

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processing resources to process the client request; and

determining whether a communication path between a multimedia server and the plurality of clients has sufficient bandwidth to accommodate the client request.

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24. The apparatus of claim 19, wherein the memory further comprises operational instructions that cause the processing module to:

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when the multimedia system does not have the sufficient resources to fulfill the client request, determine whether an alternate multimedia service is available by at least one of:

for a video program, adjusting resolution to a default resolution for the multimedia system;

for a video program, adjusting video quality to a default  
5 video quality for the multimedia system;

querying the one of the plurality of clients to select the alternative multimedia service; and

10 automatically selecting the alternate multimedia service based a pre-programmed alternative selection.

25. The apparatus of claim 19, wherein the memory further comprises operational instructions that cause the  
15 processing module to:

when the multimedia system does not have the sufficient resources to fulfill the client request, determine whether the client request has priority over a currently serviced  
20 client request; and

when the client request has priority over the currently serviced client request, preempt the currently serviced client request to obtain the sufficient resources.



26. The apparatus of claim 19, wherein the memory further comprises operational instructions that cause the processing module to:

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when the multimedia system does not have the sufficient resources to fulfill the client request, determine whether allocation of the plurality of resources can be reallocated to fulfill the client request; and

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when the plurality of resources can be reallocated to fulfill the client request, adjust allocation of the plurality of resources to fulfill the client request.

15 27. The apparatus of claim 26, wherein the memory further comprises operational instructions that cause the processing module to determine whether allocation of the plurality of resources can be reallocated to fulfill the client request by:

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monitoring use of the plurality of resources in comparison to capabilities of the plurality of resources;

when the use of at least some of the plurality of resources is not optimal, adjusting the allocation of the plurality of resources.

5 28. The apparatus of claim 19, wherein the memory further comprises operational instructions that cause the processing module to allocate the at least some of the sufficient resources to fulfill the client request by at least one of:

10 allocating the at least some of the sufficient resources in a first-come-first serve manner;

15 allocating the at least some of the sufficient resources in a trunked manner; and

allocating the at least some of the sufficient resources based on a predetermined assignment to a particular one of the plurality of clients.

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29. The apparatus of claim 19, wherein the memory further comprises operational instructions that cause the processing module to:

when the one of the plurality of clients has enhanced  
feature privileges, allocate further resources of the  
10 plurality of resources to support enhanced features for the  
one of the plurality of clients.

30. An apparatus for managing resources in a multimedia system, the apparatus comprises:

processing module; and

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memory operably coupled to the processing module, wherein the memory includes operational instructions that cause the processing module to:

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receive a client request for a multimedia service from one of a plurality of clients;

determine whether the client request is valid for the one of the plurality of clients;

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when the client request is valid for the one of the plurality of clients, determine whether the multimedia system has sufficient resources of a plurality of resources to fulfill the client request; and

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when the multimedia system has the sufficient resources to fulfill the client request, allocate best match resources of the sufficient resources to fulfill the client request.

31. The apparatus of claim 30, wherein, when the client request is to view a video program, the memory further comprises operational instructions that cause the

5 processing module to determine whether the client request is valid by:

determining whether access to the video program is restrict for the one of the plurality of clients;

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when the video program is not restricted for the one of the plurality of clients, validating the client request; and

when the video program is restricted for the one of the  
15 plurality of clients, denying the client request.

32. The apparatus of claim 30, wherein the memory further comprises operational instructions that cause the processing module to determine whether the client request

20 is valid by:

determining whether the client request is received during an assigned access time period for the one of the plurality of clients;

when the client request is received during the assigned access time period, validating the client request; and

- 5 when the client request is not received during the assigned access time period, denying the client request.

33. The apparatus of claim 30, wherein the memory further comprises operational instructions that cause the

- 10 processing module to determine whether the multimedia system has the sufficient resources by at least one of:

determining whether a tuning module has capacity to accommodate the client request;

- 15 determining whether a channel mixer has sufficient processing resources to process the client request; and

determining whether a communication path between a

- 20 multimedia server and the plurality of clients has sufficient bandwidth to accommodate the client request.

34. The apparatus of claim 30, wherein the memory further comprises operational instructions that cause the processing module to:

- 5 when the multimedia system does not have the sufficient resources to fulfill the client request, determine whether the client request has priority over a currently serviced client request; and
- 10 when the client request has priority over the currently serviced client request, preempt the currently serviced client request to obtain the sufficient resources.

- 35. The apparatus of claim 30, wherein the memory further  
15 comprises operational instructions that cause the processing module to allocate the best match resources of the sufficient resources to fulfill the client request by:

- maintaining a listing of resource capabilities for each of  
20 the plurality of resources;

determining type of resource needed to support the client request; and

performing a best match analysis to identify the best match resources based on the resource capabilities of the best match resources and the type of resource needed.

5 36. The apparatus of claim 30, wherein the memory further comprises operational instructions that cause the processing module to:

10 determine whether the multimedia system has excess available resources;

when the multimedia system has excess available resources, determine whether the one of the plurality of clients has enhanced feature privileges; and

15 when the one of the plurality of clients has enhanced feature privileges, allocate further resources of the plurality of resources to support enhanced features for the one of the plurality of clients.

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